APPLICATION SPECIFIC PRESERVATION

vaccine storage

REFRIGERATORS & FREEZERS DESIGNED FOR PRECISE & STABLE VACCINE STORAGE

Ideal Vaccine Storage Environment for Precise Control & Superior Temperature Uniformity

- Superior Temperature Control & Uniformity
- Microprocessor controller and interior forced air circulation.
- Safe and Secured Storage behind a keyed locking door
- Integrated alarm functions, remote alarm contacts, and monitoring

Ideally suited for vaccine storage in clinics, hospitals, retail pharmacies and laboratories. Ranging in size from economical undercounter freezers and refrigerators to large capacity combination units in upright configuration. SANYO provides purpose-built equipment to meet your requirements of precise and stable temperature control and monitoring of your vaccine supply. SANYO preservation systems employ advanced technology to insure a high precision temperature environment.

MPR-214F
MPR-414F
SR-L6111W
SF-L6111W
EAC-1000B

EAC-1000B-M
EAC-1000B-P

SR-L6111W

MPR-414F

innovation
performance
reliability
support

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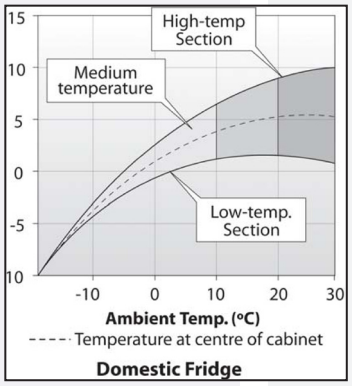
VACCINE STORAGE

Globally, inadequate refrigeration and inadequate storage conditions have attributed to depleting our already diminishing vaccine supply. This decrease in critical vaccine levels can be particularly high when multi dose vials are used and where there is poor stock and clinic management. WHO and UNICEF have estimated that vaccine wastage rates in developing countries can reach as high as 50% for specific vaccines such as the 10-20 dose lyophilised vaccines. According to the CDC, improper storage is the most common vaccine delivery problem they encounter. Cold chain errors affect up to 44 million doses, costing between $433 and $481 million.



Accurate and uniform temperature distribution in a refrigerator plays a key role in ensuring the life of your vaccines, reagents and other biologicals. Research has shown that minor variances in temperatures such as those in a household refrigerator can compromise the effectiveness of your biologicals, risking up to thousands of dollars in valuable contents.

Household Refrigeration
Household refrigerators for the storage of vaccines, reagents and biologicals are no longer deemed adequate by researchers. These types of refrigerators do not offer precise temperature setpoint, hold, uniformity or recovery after door openings. So, while household refrigerators appear to be cost effective, initially, the long-term costs associated with variable temperature and lost biologicals can be significant.

HOUSEHOLD REFRIG

KEY DISADVANTAGES OF HOUSEHOLD REFRIGERATORS

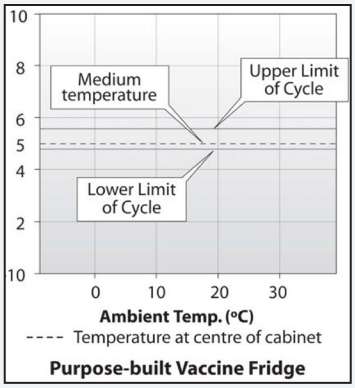
- Thermal mass is required to stabilize temperatures
- Numerous temperature zones restricts vaccine storage to certain areas of the refrigerator
- Air from evaporator is below 0°C, so any vaccines near air vents can be exposed to these temperatures. Air vent locations differ between manufacturers and models.
- Type and location of thermostat differs between manufacturers and models.
- Generally slow to react to increases in temperature and have a wide temperature tolerance.
- Temperature controller dial has arbitrary scale. Difficult to accurately set desired temperature.
- Change in ambient temperature affects internal temperatures.
- Poor temperature monitoring capabilities
- Defrost function can cause temperature fluctuations
- Poor temperature recovery.
- Large temperature fluctuations
- Inefficient use of cabinet and shelving space
- Strict loading requirements
- No alarms

Application Specific Preservation
SANYO offers a selection of Pharmaceutical Refrigerators and Freezers that include significant design and performance properties which differentiate them from conventional household refrigerators that are not suitable for pharmacy use.

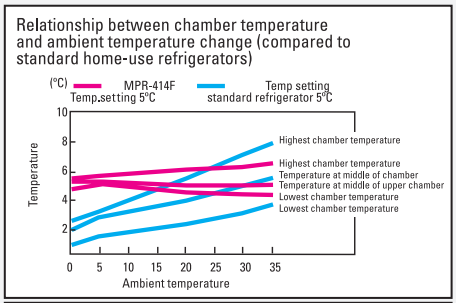
KEY ADVANTAGES OF SANYO APPLICATION SPECIFIC REFRIGERATION

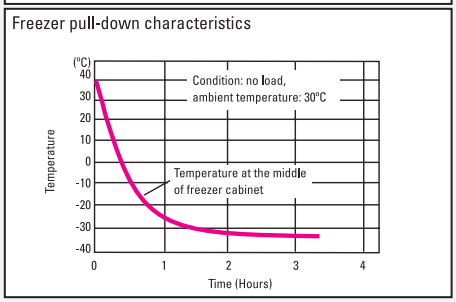
- Digital temperature sensors and controllers built specifically to maintain a set temperature within the 2°C to 8°C temperature range
- Temperature sensor measures air temperature inside fridge

PURPOSE-BUILT



- Evaporator operates at 2°C, therefore preventing vaccines from freezing
- Alarms and temperature monitoring for quick notification of adverse operating conditions
- Separate temperature monitor probe
- Fan-forced air circulation
- Efficient temperature recovery properties.
- Built to handle changes in ambient temperatures
- All temperatures within refrigerator maintained a set temperature between 2°C to 8°C range
- External digital temperature display
- Minimal temperature fluctuations around set point





Regulations and Requirements
Variations in temperature and failure to follow storage and monitoring requirements can drastically affect the effectiveness of vaccines through non-compliance of regulatory standards of governing agencies.

vaccine storage

REGULATIONS & REQMNTS

Sanyo designs equipment for specific applications while ideally meeting the standards of the Food and Drug Administration (FDA), American Association of Blood Banks (AABB), Joint Commission on Accreditation of Healthcare Organizations (JCAHO), International Committee for Harmonization (ICH), and United States Department of Agriculture (USDA).

Vaccine Storage Requirements

- Maintain required temperature range throughout the year
- Separate doors for refrigerator and freezer
- Large enough to hold year's largest vaccine inventory
- Dedicated to biologics*

Recommended by the Centers of Disease Control

Effect of Temperature on Vaccines

Vaccines need to be kept in refrigerators or freezers at certain temperature ranges to remain potent.

Live vaccines

- Tolerate freezing
- Deteriorate rapidly after removal from freezer

Inactivated vaccines

- Damaged by exposure to freezing temperatures
- Tolerate short time out of refrigeration

Vaccine	Storage Requirement
DTaP, Td DT	2°– 8°C (35°– 46°F). Do not freeze.
Hepatitis A and B Vaccines	2°– 8°C (35°– 46°F). Do not freeze.
H. influenzae type B	2°– 8°C (35°– 46°F). Do not freeze.
Haemophilus (HiB)	2°– 8°C (35°– 46°F). Do not freeze.
Influenza Vaccine	2°– 8°C (35°– 46°F). Do not freeze.
IPV	2°– 8°C (35°– 46°F). Do not freeze.
MMR, MR Measles Virus Rubella Virus Mumps Virus	2°– 8°C (35°– 46°F). Protect from light MMR vaccine may be frozen.
Pneumococcal	2°– 8°C (35°– 46°F). Do not freeze.
Varicella Vaccine	Freeze immediately upon arrival. Store at or below -15°C (+5°F). Diluent can be stored at room temperature. Do not freeze diluent. May be stored at refrigerator temperature (2°– 8°C, 35°– 46°F) for up to 72 hours prior to reconstitution. Vaccine stored at 2°– 8°C which is not used within 72 hours of removal from -15°C storage must be discarded.

MPR-SERIES

MPR-Series Pharmacy Refrigerator

With the growing emphasis on proper storage of laboratory and pharmacy materials, SANYO MPR-Series Pharmacy Refrigerators with Freezer combine high performance refrigeration, control and alarm/monitoring systems with energy-efficient, cost-effective cabinet design to deliver both refrigeration and freezer capacity in a single unit. With increasing federal regulations, storing your valuable vaccines, reagents and other biologicals will not suffice; see the comparison on the table below.

	MPR-214F MPR-414F	Domestic refrigerator
CFC-free, Reliable temp. control not Affected by ambient temp.	■●	▼
Digital display of chamber Temperature	■●	▼
Precise temperature setting of chamber	■●	▼
Variable temp. control of Refrigerator (2 to 14°)	■●	▼
Variable temp. control of Freezer (-20°C to -30°C)	■●	Max/ Mid/Min
Separate operation of Refrigerator and freezer	■●	-18°C
Windows for viewing	■●	▼
Racks (SUS-304, MPR-41R)	■●	▼
Monitoring hole/port	■●	▲
Temperature recorder (option)	■●	▼
Door ajar alarm	■●	▲
High/low alarm and Overheating protection	■●	▼
Remote alarm terminal	■●	▼
Set temp. deviation protection	■●	▼
Self diagnostic function	■●	▼
Condensate evaporator	■●	●

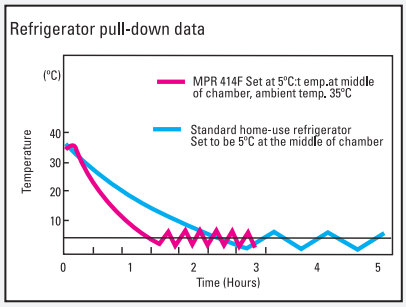
■ Necessary function, construction or performance for preservation of reagents and pharmaceuticals
● Yes
▲ Some models are Yes
▼ NO

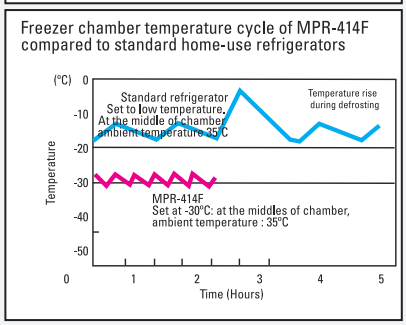
Sanyo MPR-Sereis Features

- Microprocessor control for accurate temperature management.
- Mechanical convection airflow in refrigerator. Ducts and plenums achieve uniform temperature at all shelf levels regardless of product loading, with quick temperature recovery following door openings.
- Unique refrigerator defrost system prevents temperature variations during defrost cycle; defrost is automatically activated after each compressor ON cycle to minimize duration of defrost function.
- Separate for refrigerator and freezer

MPR-SERIES

- Secondary temperature deviation safety device prevents over temperature or under temperature condition.
- High and low temperature alarm includes audible and visual warning with alarm ringback.
- Remote alarm contacts allow connection to remote alarm system.
- Open door indicator light with 15 minute delayed audible alarm adds to safety.
- Keyed door locks contribute to inventory security.





Quiet, Energy Efficient Performance

- Two specially designed SANYO hermetically sealed compressors operate with quiet efficiency; two compressors allow independent cooling of both refrigerator and freezer compartments.
- Four door design reduces cold air loss during door openings; makes most efficient use of available space.
- Hot gas heated mullion prevents condensation and icing, maintains integrity of door gasket seal.
- SANYO developed CFC-free refrigerants are specially formulated for laboratory use.
- CFC-free foamed-in-place insulation minimizes performance variations due to ambient temperature changes.

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SR-L / SF-L SERIES

Built-in Under the Counter Scientific Grade Laboratory Refrigerator

SANYO undercounter refrigerators and freezers feature stable temperature and uniformity with convenient door mounted temperature controls. Doors have key locks for added security.

- Superior temperature control and uniformity via a door mounted microprocessor controller and interior forced air circulation
- Safe and secured storage behind a keyed locking door and optional padlock hasp
- Laboratory-Ready™ with integrated alarm functions, remote alarm contacts and monitoring probe access port
- Meets JCAHO standards for controlling medication access.

The cabinet offers superior temperature control and uniformity required for short-term and long-term storage of biologicals, reagents and other temperature sensitive materials. Compact and space efficient, the 6.1 cu.ft. undercounter cabinet includes a door-mounted microprocessor temperature control and digital display module with integrated alarm, monitoring and remote data functions.

Cabinet features include positive chamber air circulation for maximum temperature uniformity, and an access port for independent monitoring probe(s). The flat profile inner door enhances interior storage volume on adjustable open wire shelves.

Security considerations for protection of high value items include a controller lock-out function to prohibit unauthorized setpoint changes, and a keyed locking door with optional padlock hasp.

Door Mounted Controller Offers...

SR-L / SF-L SERIES

- Digital input of temperature with set-point range from 1°C to 14°C (SR), -15°C to -25°C allows end user temperature flexibility
- Automatic tracking alarm +/-3°C around setpoint monitors critical temperature variances
- Door ajar alarm with alarm delay timer eliminates nuisance alarms
- Easy to read, angled L.E.D. display and keypad
- Remote alarm contacts for connecting to a centralized alarm monitoring system

CONTROL & ACCESS

Secure Access to Valuable Vaccines, Medications, and Samples stored in Refrigerators & Freezers

Laboratory & Medical Applications
Universal Design
(Surface Mounted)
to fit any refrigerator or freezer

- Field installable
- Multiple access control technologies
- (Keypad / Proximity Card / Magnetic Strip)
- Meets JCAHO requirements for security

Lab Center EAC-1000B

EAC-1000B is a highly engineered lock with a motor driven latch. It's uncompromising lock control electronics include a non-volatile memory that stores 250 user/supervisor codes and audit trail.

When a valid credential is detected, the green LED illuminates, the locking mechanisms opens and there is a positive confirmation beep. If an invalid credential is entered, the red LED illuminates and there is a negative beep.

EAC-1000B

Three Selections for your Specific Applications...

Capable of being surface mounted on multiple units, including refrigerators, freezers, ultralow freezers and incubators.

EAC-1000B (Keypad)

Non-volatile memory stores 250 users and audit trail of 1500 access attempts with date, time, and user name.
Optional tracking and control software (CompX Lockview compatible)
Provides authorization with a PIN (personal identification number) code of variable length.

EAC-1000B-M (Magnetic Strip Pod)

Designed for secure confirmations with existing magnetic stripe cards, including credit cards. Can program existing I.D. magnetic strip cards into unit. Simple operation with a swipe of the card.

EAC-1000B-P (Proximity HID Pod)

In-contact proximity based system that uses standard HID Corporation proximity cards. Just wave the card in front of the reader and unlock. Can program many existing HID Proximity I.D cards currently in use. Approximately 1 inch card read range.

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